Bristol Trade and Mining School, founded by the exertions of the late Canon Moseley, in 1855.

A RECENT report by Dr. Bürkner to the Göttingen Royal Society of Sciences, on his "Polyklinik" for ear disorders, gives some instructive facts. In 1881 the number of patients was 516 persons (338 male and 178 female), with 583 different forms of ear disorder. The doctor reckons that a cure was effected in 61·85 per cent. of the patients, and improvement in 15·12 per cent. 211 (or 40·9 per cent) of the patients were of juvenile age, 15 and under. There were 139 cases of injury of the external ear, 15 of the tympanum; 322 of the middle ear, 27 of the inner ear, and 13 sundry. For otorrhœa, pulverised boric acid was largely used. The greatly praised iodoform was fully tried in ear-treatment, but Dr. Bürkner considers it has "no future" in this sense. Leiter's heat-regulator, consisting of very flexible lead tubes, through which water of any desired temperature is conveyed to injured parts of the body, did good service, especially in inflammation.

FOR the Sanitary Institute Congress at Newcastle-upon-Tyne, September 26, the following gentlemen have accepted the presidentship of the various sections:—Dennis Embleton, M.D., F.R.C.P., Section I. Sanitary Science and Preventive Medicine; Henry Law, M.I.C.E., Section II. Engineering and Sanitary Construction; Arthur Mitchell, M.A., M.D., LL.D., F.R.S., Section III. Meteorology and Geology.

MR. W. G. INNES, of Great St. Helens, has sent us a few specimens of photographs of New Zealand scenery, taken by Burton Brothers, of Dunedin. They are beautiful specimens of the photographic art, and many of them are of interest from a geological and ethnological point of view. One photograph gives an excellent idea of the White Terrace at the Rotomahana Hot Springs, others show some of the grand mountains and beautiful bays, native life, &c.

MR. BRYCE WRIGHT has, we understand, received a very fine specimen of the interesting gem known as Alexandrite, from India.

THE enormous glacier, Fon or Svartisen (69° 25′ N., 35° 15′ E.) on the Senjen Island in Norway, and which is the northernmost of its kind in Europe, will shortly be made the object of a remarkable enterprise. It appears that a number of speculative merchants in Bergen have obtained the right of cutting block-ice for export from its surface. Some blocks have already arrived at the latter place, and as the quality of the ice has been found to be good, large shipments may be expected. The glacier is about 120 square miles, and as the distance from its border to the sea is only a couple of miles, the ice may be obtained very cheaply. A similar attempt to utilise the glacier Folgefonden was made some years ago, but failed, owing to the blocks in their downward course repeatedly breaking through the wooden bore or conductor in which they were slid down to the sea.

THE Zoological Museum of the Lund University has just received as a gift from Prof. Nordenskjöld a splendid specimen of the sea-cow, *Rhytina Stelleri*, now extinct, brought by the *Vega* from Behring Island.

PASTEUR'S discoveries having been doubted in Germany, they have been submitted to the appreciation of a special commission in Berlin, and M. Pasteur sent thereto one of his assistants to perform vaccination on sheep. The report has been sent to Paris, and is said to approve the process and to show that it has been quite as efficient in Germany as in France.

THE *Daily News* correspondent at Maritzburg reports that a brilliant comet has been observed there for the last two or three days, in close proximity to the sun.

WE have on our table the following books:—China, by Prof. R. K. Douglas (S.P.C.K.); White's Manual of Naval Architecture, 2nd edition (John Murray); Electric Lighting, by Th. du Moncel, translated by R. Routledge (George Routledge and Sons); La Bourboule, by Dr. G. H. Brandt (H. K. Lewis); the Funeral Tent of an Egyptian Queen, by Villiers Stuart (John Murray); Hot Water Heating, by F. A. Fawkes (Batsford); Notes on Cage Birds, edited by W. T. Green (Upcott Gill); Botanical Atlas, Part II., by Dr. M'Alpine (W. and A. K. Johnstone); Im Fernen Osten, 2 vols, by Gustave Kreitner (A. Hölder); Results of Rain and River Observations made in New South Wales during 1881, H. C. Russell, Sydney; Handbook of Invertebrate Zoology, by W. K. Brooks (Cassino, Boston, U.S.); How to Overcome the Potato Disease, by J. S. Jensen (Menzies); A Synopsis of Elementary Results in Pure and Applied Mathematics, vol. i., section 9, by G. S. Carr (Hodgson and Son).

THE additions to the Zoological Society's Gardens during the past week include an Arabian Baboon (*Cynocephalus hamadryas* ♂) from Abyssinia, presented by the Messrs. James; a Bonnet Monkey (*Macacus radiatus* ♂) from India, presented by Master G. H. Clark; a Chima-chima Milvago (*Milvago chimachima*) from Demerara, presented by Mr. G. H. Hawtayne; two Upland Geese (*Bernicla magellanica* ♂ ♀), five Ruddy-headed Geese (*Bernicla rubidiceps*), a Loggerheaded Duck (*Tachyeres cinereus*) from the Falkland Islands, presented by Mr. F. E. Cobb, C.M.Z.S.; a Rufous-necked Weaver Bird (*Hyphantornis textor*) from West Africa, a Common Lapwing (*Vanellus cristatus*), European, presented by Mr. J. S. Baldwin, F.Z.S.; a Loggerhead Turtle (*Thelassochelys casuana*) from the Straits of Bonifacio, presented by Lord Lilford, F.Z.S.; a White-backed Piping Crow (*Gymnorhina leuconota*) from Australia, deposited; a Black-fronted Antelope (*Cephalophus nigrifrons*) from Africa, a Water Chevroain (*Hyomoschus aquaticus*) from West Africa, three Darwin's Rheas (*Rhea darwinii*) from Patagonia, two Spanish Blue Magpies (*Cyanopolius cookii*) from Spain, purchased; an Egyptian Goose (*Chenalopex ægyptiaca*), a Chiloe Wigeon (*Mareca chiloensis*), five Mandarin Ducks (*Aix galericulata*), bred in the Gardens. The following insects have emerged during the past week:—Silk Moths: *Actias selene*, *Samia cecropia*; Moths: *Sphinx pinastri*, *Deiliphila euphorbiæ*, *Trochilium apiformis*, *Sciapteron tabaniformis*, *Sesia conopiformis*, *Sesia muscæiformis*, *Hypochera io*, *Callimorpha dominula*; Butterflies: *Vanessa xanthomelas*, *Vanessa urticæ*, *Aporia crabægi*.

OUR ASTRONOMICAL COLUMN

THE APPROACHING TRANSIT OF VENUS.—In deducing the following expressions for determining the times of contacts in the transit of Venus on December 6, for any point upon the earth's surface, the positions of the planet have been taken from Hill's Tables, which had an advantage over Leverrier's at the last transit, and Auwer's semi-diameter is adopted. For the sun the semidiameter deduced by Leverrier from the transits of Mercury has been employed.

For *first external* contact, there results—

$$\text{Dec. 6, 1h. 56m. 12s.} + [2{\cdot}5442]\, r \sin l - [2{\cdot}4793]\, r \cos l \cos (\mathrm{L} - 87^\circ\, 35'{\cdot}0).$$

For *first internal* contact—

$$\text{Dec. 6, 2h. 16m. 52s.} + [2{\cdot}5822]\, r \sin l - [2{\cdot}4768]\, r \cos l \cos (\mathrm{L} - 85^\circ\, 31'{\cdot}9).$$

For *last internal* contact—

$$\text{Dec 6, 7h. 54m. 0s.} - [2{\cdot}2894]\, r \sin l + [2{\cdot}6261]\, r \cos l \cos (\mathrm{L} - 138^\circ\, 18'{\cdot}8).$$

For *last external* contact—

$$\text{Dec. 6, 8h. 14m. 41s.} - [2{\cdot}2152]\, r \sin l + [2{\cdot}6142]\, r \cos l \cos (\mathrm{L} - 134^\circ\, 38'{\cdot}1)$$

The angles from N. point for *direct* image are respectively 145°·1, 148°·4, 116°·9, and 113°·5.

In the above formula r is the radius of the earth at the place, l the geocentric latitude, and L the longitude from Greenwich, reckoned *positive* towards the *east*. The resulting times are

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Greenwich mean times. The quantities within square brackets are logarithms of seconds of time.

THE CORDOBA OBSERVATION OF COMET 1881 II., ON JUNE 11.—In NATURE, vol. xxv. p. 519, we gave an account of Dr. Gould's observations of the great comet of last year, on the evening of June 11, when he compared it with an object which he could not identify as a fixed star, and it was mentioned that Mr. Tebbutt had suggested that the objects really observed were not the comet and a star, but the two stars λ Eridani and Bradley 718, which have almost precisely the differences of right ascension and declination that were recorded on the night in question. This explanation we considered a probable one, and the same view was taken by the editor of the *Astronomische Nachrichten*, which has occasioned a further communication on the subject from Dr. Gould, who rejects Mr. Tebbutt's suggested solution of the difficulty.

Dr. Gould says the appearance of the comet on June 11 precluded the slightest doubt as to its identity. "The tail itself could not be seen with the telescope, it is true, but the large, diffuse, and very elongated head, much brighter and more definite on the advancing side, was sufficient to enable the veriest tyro to recognise it as a comet." He was placed necessarily on the top of a high observing chair, which he did not leave during the observations, the records being made by his assistant. He had made several sweeps to find a suitable comparison-star, and was about to commence a new one, when he saw the object referred to above, "at the upper part of the field on the left, while the comet was on the right, below." The four published comparisons were then made, and whilst he was in the act of pointing the micrometer-thread upon the comet for a fifth, it disappeared below the horizon. He adds, that no jar of the instrument had taken place; "the field of the telescope was fully under control from the beginning, the declination-clamp remaining tight throughout," and he insists that no one who saw the comet could have entertained the idea that any amount of blurring could have given such an aspect to a fixed star, though it were far brighter than λ Eridani. And he doubts whether a star of the sixth magnitude would have been visible under the circumstances. He made experiments on subsequent evenings, by looking at known stars of different magnitudes when close to the horizon and through different degrees of haze, but in no case did he find one offer the appearance noted on June 11. Hence, he proceeds: "I can only suppose another comet to have been in the field. That it was not a companion-comet is manifest, not only from the relative motion, and from an examination made the next day, but still more from the abundant scrutiny in the northern hemisphere, which could not have failed to detect any companion. That it was not a fixed star, was evident from the beginning."

Thus the matter is left by Dr. Gould, who, it must be admitted, is by far the most competent judge of the probable explanation of the difficulty.

MASKELYNE'S SOLAR PARALLAX.—By communications from Mr. J. Morris, Hatfield Hall, Durham, and Mr. B. J. Hopkins, Marlborough Road, Dalston, we learn that the value of the solar parallax given by Maskelyne, to which allusion was made in this column last week, appears in the third edition of Vince's "Elements of Astronomy," Cambridge, 1810: it was therefore published during his life-time.

THE ROYAL SOCIETY OF CANADA

THIS Society, which has been founded under the auspices of the Marquis of Lorne, and is intended to be to Canada what the Royal Society and the Institute are to England and France respectively, held its first meeting on May 25, 26, and 27. Inaugural addresses were delivered on the 25th by the Marquis, Principal Dawson, and the Hon. P. J. O. Chauveau. For the purpose of reading and discussing papers, the Society is divided into four sections:—(1) French literature, history, and allied subjects; (2) English literature, history, and allied subjects; (3) mathematical, physical, and chemical sciences; (4) geological and biological sciences. The following papers were read in Section 3:—Note on zinc sulphide, by T. McFarlane. On the "transition" resistance to the electric current at the bounding surface between amalgamated zinc and solutions of zinc sulphate, by Prof. J. G. MacGregor, D.Sc. The "transition" resistance in this case was shown to be at any rate not greater than a small fraction of an ohm, the current being weak and the electrodes large. The method of measurement employed was a modification of that formerly used by Beetz.—On the measurement of the resistance of electrolytes by means of Wheatstone's bridge, by the same. In this paper, a new mode of using the bridge was described. Alternate currents were sent through the bridge, and brought into the same direction by a commutator in the galvanometer branch, in which one of Thomson's galvanoscopes was inserted. Two of the arms contained equal metallic resistances; the other two contained, besides metallic resistances, electrolytic cells the same in all respects, except as to length. Thus the errors due to polarisation and possible "transition" resistance were eliminated.—On molecular contraction in natural sulphides, by Prof. E. J. Chapman.—On the law of facility of error in the sum of n independent quantities, each accurate to the nearest unit, by Chas. Carpmael, M.A. The chance of the error in the sum lying between y_1 and y_2, where y_2-y_1 is small, was shown to be

$$\frac{1}{\lfloor\!\underline{n-1}}\left\{\left(\frac{n}{2}+y_1\right)^{n-1}-n\left(\frac{n}{2}+y_1-1\right)^{n-1}+\right.$$

$$\left.\frac{n\,.\,\overline{n-1}}{1\,.\,2}\left(\frac{n}{2}+y_1-2\right)^{n-1}-\&c.\right\}(y_2-y_1),$$

the series to be continued as long as the part raised to power $n-1$ is positive. This series is approximately equal to

$$\sqrt{\frac{6}{\pi n}}\,.\,e^{-\frac{6y^2}{n}}\,(y_2-y_1).$$

—A symmetrical investigation of the curvature of surfaces; including a discussion of the plane sections of quadrics, the axes of conic sections and of quadrics, by Prof. A. Johnson, LL.D. In this paper it was shown that the leading theorems concerning principal radii of curvature, directions of principal sections, umbilics, lines of curvature, &c., can be obtained directly by a purely analytical investigation, elementary and symmetrical in its character, of the plane sections of a quadric.—Note on the deduction of the equation of continuity, by Prof. Loudon.—Note on the motion of a chain on a fixed curve, by Prof. Cherriman.—Note on the application of a remarkable determinant, by the same.—Note on a question of probabilities, by the same.—On the general regulation of civil time, by Sandford Fleming, C.E.—On the utility of geometry as applied to the arts and sciences, by Chas. Baillarge.

The following papers were read in Section 4:—The distribution of some saline and other plants in the West, by Prof. Maconn. This was an oral exposition, aided by a large map of certain peculiarities in the distribution of maritime Eastern and Western plants in the interior of the continent, and of some peculiar extensions of Southern plants to localities far north of their usual range.—Note on a general section from the Laurentian axis to the Rocky Mountains, north of the 49th parallel, by Dr. G. M. Dawson. This paper gave a summary of the latest facts respecting the succession and distribution of Cretaceous and early Tertiary beds in the North-West Territories, and of the facts obtained respecting their subdivision into groups, and the useful deposits of coal and lignite contained in them.—On the cretaceous and tertiary floras of British Columbia and the North-west territory, by Dr. J. W. Dawson, F.R.S., &c. The researches of the Geological Survey have resulted in the collection of series of fossil plants from a number of localities in the cretaceous of the Pacific coast, and of the eastern base of the Rocky Mountains, in the laramie or lignitic group of the plains, and in the Tertiary Lake Basins of British Columbia. From these it appears that while up to the Middle Cretaceous a flora of strictly Mesozoic character, consisting of pines, cycads, and ferns prevails, the Middle and Upper Cretaceous show the introduction of a larger number of broad-leaved evergreens of modern types. Though there seems to be a continuous prevalence of warm and temperate conditions, from the Upper Cretaceous, up to the Pliocene, the groups of plants observed may be classed as—(1) Lower and Middle Cretaceous; (2) Middle and Upper Cretaceous, with modern evergreens, as *Salix*, *Populus*, *Magnolia*, *Betula*, *Quercus*, &c., and fan palms and cycads; (3) Laramie or Fort Tunis group, probably a transition from the Cretaceous to the Eocene, with many new forms; (4) Tertiary Flora of the probably Miocene Tertiary of British Columbia. Descriptions and figures of these plants are being prepared, and it is hoped may soon be published.—On the anatomy and development of cestoid worms, by Prof. Ramsay

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